

PACIFIC SALMON RECOVERY AND RESTORATION - \$12.5M, 53 FTEs

1. Desired Outcome: Restore naturally spawning wild salmon populations and the critical habitats upon which they depend across a wide range of environmental conditions to provide harvestable surpluses for tribal, commercial and recreational fishing opportunities consistent with existing law.
2. Brief Description of Theme: Pacific salmonids, which have long been integral to the culture and economy of the west coast, have declined dramatically over the past century due to the combined effects of habitat destruction; hydropower operations; poor land-use, transportation and water-resource decisions; harvest and hatchery impacts; increased predators; exotic species impacts; and poor environmental conditions. Because of the complexity of the salmon life cycle and the vast areas through which they migrate, almost every Pacific Ecoregion (terrestrial, freshwater, estuarine, and marine) is affected by salmon recovery. Twenty-six populations, or half, of Pacific salmonid populations located in an area of over 159,000 square miles of land in 4 states are now threatened or endangered with extinction. Salmon recovery involves major urban and metropolitan areas, making conservation efforts complex and controversial.

NOAA needs to bolster its regulatory and science capabilities to respond quickly and effectively to actions affecting ESA listed salmonids, and provide science-based advice to the broad array of federal, state, tribal, local government and private entities that are involved in salmon conservation. An immediate need is to expand recovery planning, implement the most effective measures, and then monitor and assess the effectiveness of those measures.

MAKING THE ESA WORK: \$ 3.0M and 14 FTEs (NWR, NWC, SWR, SWC)

This initiative is to bolster NMFS capabilities in collaborative conservation planning and ESA consultations to minimize risks to Pacific salmon. Despite significant growth in both NWR and SWR staffing and budgets, additional resources are needed for NMFS to effectively and efficiently respond to a tremendous work load. NMFS must collaborate with state and local agencies, tribal entities, private landowners, and local watershed councils in developing state, county and local conservation plans that are built on a sound scientific foundation for reducing risks to salmon. NMFS must responsibly use its ESA regulatory “tools” (including Section 7 consultations, HCPs, Section 10 permits, and 4d rules) in partnership with Federal, state, local, and private sector to conserve and restore Pacific salmon populations.

To improve effectiveness, NMFS needs significant additional resources to undertake compliance and effectiveness monitoring and evaluation of conservation measures. NMFS needs to develop a consistent, objective process to track the implementation of salmonid conservation measures and to monitor their effectiveness in contributing to salmon recovery and the restoration of salmon habitat. NMFS will evaluate the effects on salmon populations of changes in forest management practices, water management and water quality improvements, hatchery and harvest reforms, and other major efforts. In addition, NMFS enforcement capability must be increased to prevent illegal and inappropriate actions that affect salmon in the freshwater habitat arena, and to encourage private landowners and state/local agencies to come forward and work collaboratively with NMFS to protect and restore salmon and their habitat.

RECOVERY PLANNING: \$2.0M and 12 FTEs (NWR, NWC, SWR, SWC)

This science and management initiative is for NMFS to develop comprehensive, multi-species recovery plans to effect recovery of listed salmon. NMFS must establish recovery teams, conduct risk assessments on the factors affecting recovery, evaluate alternative strategies for recovery including analysis of the socioeconomic impacts of recovery strategies, and develop science-based recovery plans to ensure long term recovery.

In order to develop science-based recovery plans, NMFS must bolster its research and technical capability for: analyzing the factors affecting survival of at-risk salmonids; evaluating conservation measures and habitat restoration efforts; conducting economic analyses and cumulative risk assessments; and developing scientific objectives and delisting criteria. NMFS must expand and apply the Cumulative Risk Initiative (CRI) as a coast-wide analytical framework for assessing and prioritizing risks in the context of the salmon life cycle. The CRI allows scientists to advise decision-makers about how to best manage risks, and also helps identify which avenues of research and recovery efforts deserve the highest priority. To use the CRI effectively, NMFS must develop and expand spatially explicit GIS databases that layer populations, geographic attributes, risks, and management activities.

USE NOAA'S AUTHORITIES TO SUPPORT RECOVERY: \$2.5M and 9 FTEs (NMFS/RC,-2 SW/NWR-1, GCNR-1, NOS/ORR-5)

NOAA will investigate ways to use a broader range of its authorities to provide the greatest possible benefit to Pacific salmonids. Initially, NOAA will strategically focus its authorities under CERCLA to support salmon recovery efforts. In applying these authorities, NOAA can support leading-edge research on the impacts of contaminants on salmon and on options for salmon restoration efforts. NOAA will contribute its technical expertise to improve cleanup actions at more hazardous waste sites that are significantly affecting Pacific salmon. NOAA and its co-trustees will recover funds and/or services from responsible parties to implement restoration efforts that directly support the recovery needs of salmon. Providing resources for this effort will allow NOAA to more easily integrate CERCLA activities on the Pacific coast with its activities under the ESA, enabling NOAA to leverage greater benefits for salmon.

HABITAT ASSESSMENT AND CONSERVATION: \$5.0M and 18 FTEs (NWC, SWC):

This initiative is to expand NMFS salmon research in freshwater, estuarine, and ocean environments. Developing approaches for the recovery of salmon requires methods for evaluating the response of species to proposed suites of management measures. This requires an understanding of the impacts of various activities and interactions on the health and fitness of salmon. Whether it is understanding the habitat requirements, the effects of predation by other fishes, seabirds or pinnipeds, or the effects of changing climate regimes, there is much to learn to be able to put cost effective recovery measures in place.

In freshwater systems, we need to improve our scientific capacity for habitat quality assessment and evaluation of habitat restoration efforts. A better understanding of the relationship between habitat quality and the productivity of salmonids will enable the determination of the impact of

management actions affecting freshwater and estuarine habitat. Increasingly, data are showing that salmonid species are sensitive to water quality, which can be affected by land management practices, sediment loading, and point/non-point discharges. Quantifying the risks of both acute and chronic effects from pollutants in freshwater and estuarine environments is critical for setting effective water quality standards under the ESA and Clean Water Act. We also need a greater understanding of other potential limiting factors. For example, we need to develop and implement an effective research plan that addresses whether pinniped predation is adversely affecting the recovery of one or more listed salmon stocks along the West Coast.

One of the greatest challenges facing the west is the need to meet the water supply needs of agriculture and growing communities while also providing adequate instream flows for fish and wildlife. We need to expand our evaluations of the impact of water withdrawals on salmon habitat and survival. This is critical to establishing biologically defensible flow standards, which become embodied in resource management initiatives.

Estuarine systems such as Puget Sound, the Columbia River Estuary and San Francisco Bay/Delta provide habitat and sustenance during a key rearing phase for many Pacific salmonid populations. We need to improve our understanding of the linkage between estuarine habitats, trophic structure, and physical forces such as saltwater intrusion and river flow rates that dominate estuarine processes and affect salmonid productivity. We also need to improve our understanding and ability to forecast how climate and associated ecosystem changes may be affecting salmon survival and productivity. Climate change may affect hydrological patterns, such as the frequency/intensity of droughts, floods, and ocean upwelling; riparian, freshwater, estuarine, and ocean ecosystem structure and function; and temperature. Recovery planning will need to take estuarine and ocean survival into account and better science base in this area is needed.

3. What needs to be done by NOAA?

- Bolster NOAA's science and management capabilities for collaborative conservation planning and for monitoring and assessing the effectiveness of salmon conservation efforts.
- Develop science-based, comprehensive, multi-species Recovery Plans for salmonids, including an expanded scientific capacity for cumulative risk assessment.
- Strategically focus a broad range of NOAA's authorities and capabilities to provide the greatest benefit for the protection and restoration of Pacific salmonids.
- Expand the scientific assessment of freshwater, estuarine and ocean impacts on salmon to provide a scientific base for evaluating and predicting the effectiveness of conservation and recovery measures.

4. Who are NOAA's partners in this effort and what are they currently doing and what will they do?

NOAA's partners in this effort are the states of Washington, Oregon, California, Alaska, and

Idaho; county and city governments; Indian tribes; other federal agencies; and the private sector. NOAA must partner with these entities and provide sound scientific advice and input into planning processes for conserving and recovering salmonid populations.

5. Identification of, and value of the activities that impact, or depend on this species:

Pacific salmonids have long been integral to the culture and economy of the Pacific Northwest, and historically supported tremendous ocean and freshwater commercial, recreational, and tribal fisheries.

6. Budget History:

The NMFS FY2000 budget is about \$30 million under the ESA Recovery Plan line item for Pacific salmonids, of which about \$11 million is devoted to research. An additional \$9.0 million for salmon is requested in FY2001. In addition, \$58 million was appropriated in FY 2000 for pass-through to state and tribal coastal salmon recovery efforts in Washington, California, Oregon, and Alaska (the Pacific Coastal Salmon Recovery Fund), with an additional \$42 million requested in FY2001.

7. Proposed Initiative- 5 year funding (\$ in Millions):

	FY02	FY03	FY04	FY05	FY06
Making the ESA work better	3.0	1.0	0.0	0.0	0.0
Recovery Planning	2.0	2.0	0.0	0.0	0.0
Incentives to Implement Recovery	0.0	0.0	3.25	3.25	3.25
Use NOAA's authorities in recovery	2.5	1.0	1.0	1.0	1.0
Habitat assessment and conservation	5.0	2.25	2.0	2.0	2.0
TOTAL	\$12.50	\$6.25	\$6.25	\$6.25	\$6.25

RPS Initiative: Pacific Salmon Recovery

PERFORMANCE MEASURES AND MILESTONES

PERFORMANCE MEASURES		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Reduce the probability of extinction	OMB Ceiling 10% Growth							
MILESTONES	Responsible LO/PO							
Conduct studies on the impacts of contaminants on salmon and on options for salmon restoration efforts.	NOS			X	X	X	X	X
Improve salmon habitat through more protective cleanup actions at 5 hazardous wastes sites per year.	NOS			5 sites	5 sites	5 Sites	5 Sites	5 Sites
Assess damages to salmon from hazardous releases (2/year) and use funds recovered from responsible parties to implement priority salmon restoration projects.	NOS/NMFS			2 sites	2 sites	2 sites	2 sites	2 sites
Improve the effectiveness and efficiency of restoration efforts through science-based monitoring.	NMFS			5 sites	5 sites	5 sites	5 sites	sites

reduce incidental take and increase habitat protection by increasing number of completed section 7 consultations and section 10 HCPs by at least 10% each year.				10%	10%	10%	10%	10%
increase number of salmon enforcement actions by at least 10% each year.				10%	10%	10%	10%	10%
establish new multi-salmonid species recovery planning teams in at least one additional geographic area per year		4 teams	1 team	1 team	1 team	1 team	1 team	1 team
increase partnerships, outreach, and cooperative efforts to protect and restore salmon by developing at least three major initiatives per year.				X	X	X	X	X
complete final recovery plan in at least one geographic area per year.				X	X	X	X	X
develop GIS databases to support recovery planning in at least one geographic area per year				X	X	X	X	X
complete at least two research reports or policy documents per year that 1) describe research findings and 2) support management of critical salmon habitat issues such as water flows, water quality, estuarine habitat, and riparian habitat management.				research report policy document	research report policy document	research report policy document	research report policy document	research report policy document
update an annual research plan that								

summarizes ongoing research and outlines salmon and salmon habitat research priorities, coast-wide				X	X	X	X	X
hold a bi-annual symposium on ocean/climate/estuarine salmon research for broader academic and government salmon community.				X		X		X